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1 Bearings for sliding panels

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PATENT SPECIFICATION



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COMPLETE SPECIFICATION

DRAWINGS ATTACHED

Bearings for Sliding Panels

We, RICHARD GENT LIMITED, a British Company, of Park Road, Wellingborough, Northamptonshire, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention is concerned with door, window, partitioning, and other panels which, in use, are slidable on edge from one position to another, for example from a closed to an open position.

In many instances, panels of these various kinds are arranged to slide edgewise on the bottom of a channel, usually forming part of a surrounding frame for the panel (and for instance in an article of furniture), and a considerable amount of friction is thereby developed. In the case of some materials, such as wood, the channel is also liable to wear.

One object of the present invention is to provide inexpensive units which can be normally and usually installed at appropriate intervals along the intended trackway of a panel edge, so as to serve as firm, non-wearing bearings for this edge, which set up negligible friction when the panel is moved therealong.

The unit provided for this purpose by the present invention comprises a mounting block moulded of a resilient material, e.g. a thermoplastic such as polyethylene or rubber, with a ball bearing of steel or other hard material trapped in a cavity in this block so that less than half the surface of the ball stands proud of the upper surface of the block and forms what is substantially a point bearing for the panel edge.

In practice, these units are arranged at intervals along the panel trackway, for example in a channel, with the tops of the balls

in alignment, and the panel, which may for example be a glass plate, simply runs over the tops of the balls and is in contact with these over a negligible area. Thus the units afford a wear resisting support, with a minimum of friction, and the smooth, frictionless sliding effect will be further promoted if the balls have a smooth polished finish. In addition, the blocks of resilient material have a cushioning effect.

The units described can be very quickly and inexpensively fabricated. Thus, in a simple form, the blocks may be rectangular and moulded with spaced holes for receiving fastening screws, a central ball receiving cavity, having a mouth of reduced area, being provided between these holes. With the material of the block suitably chosen, the ball can be simply pressed in to its cavity and will be retained therein against detachment by the rim or lip around the mouth of the cavity.

In a development of the invention, the unit is of multiple form so that it can be used to mount the panels of a multiple-panel structure, e.g. the overlapping glass doors of a cabinet.

In such instances the unit may, in effect, comprise side by side, spaced bearing-equipped blocks of the smooth form referred to above, these blocks being joined by a web which thereby forms the bottom of a groove between them. Conveniently the two blocks and the connecting web may be moulded as a unit.

Embodiments of the invention are illustrated in the accompanying drawing, in which:—

Figure 1 is a perspective illustration of a packing mounting using an elementary form of unit according to the present invention.

Figure 2 is a cross section through one of the mounting units seen in Figure 1 and

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Figure 3 is a perspective illustration of another form of the unit, fulfilling a mounting function.

Referring first to Figure 1, the mounting units are designated 1 and each consists of a rectangular block of polythene which is moulded with a central cavity into which is pressed a steel ball bearing 2. The latter fits snugly within the cavity with more than a hemisphere embedded, so that the rim 3 of this cavity serves to trap the ball in position and prevent its subsequent escape in use.

The block is also moulded or drilled with holes 4 to receive screws 5 to fasten the unit in the required position in an article of furniture or other suitable environment. In Figure 1 it is assumed that the units 1 are to be used for the mounting of a sliding glass panel 6 in a cabinet, for which reason the units are in spaced alignment and positioned in the cabinet so that the balls 2 directly support, and provide a smooth running surface for, the lower edge of the panel.

The modified unit 7 illustrated in Figure 3 is similar, in effect, to two units 1 of Figure 1 with an integral web 8 between them. Thus each unit 7 is similarly moulded, e.g. from polythene, but has two wings 9 (each corresponding to a block 1) carrying a ball 2 and having screw receiving holes 4. These screw holes may, in fact, be omitted (see later).

In use, say, in an article of furniture having two overlapping sliding panels, the units 7 will be aligned with one block 9 of each in one of the two panel trackways. Conveniently, and as shown in Figure 3, the space between the blocks 9 and above the web 8 can accommodate an upstanding parting bead 10 which will assist, if such assist-

ance is required, in holding down the multiple units.

In addition lengths of beading, such as that indicated at 11 in Figure 3, may be arranged at the outer sides of the trackway so as to complete, in effect, a channel for one or each of the panels.

The multiple units of the kind illustrated in Figure 3 can be cut up into simple single units when the latter are required.

WHAT WE CLAIM IS:—

1. A unit for use in mounting slidable panels, comprising a block moulded of a resilient material with a ball bearing of steel or other hard material trapped in a cavity in this block so that less than half the surface of the ball stands proud of the upper surface of the block and forms what is substantially a point bearing for the panel edge.

2. A unit as claimed in Claim 1 in which the block is of rectangular form and is moulded with spaced holes for receiving fastening screws, with a central ball receiving cavity, having a mouth of reduced area between these holes.

3. A unit as claimed in Claim 1 of multiple form, comprising side by side, spaced bearing-equipped blocks joined by a web forming the bottom of a groove between them.

4. A unit substantially as hereinbefore described with reference to the accompanying drawings.

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PROVISIONAL SPECIFICATION

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This invention is concerned with door, window, partitioning, and other panels which, in use, are slidable on edge from one position to another, for example from a closed to an open position.

In many instances, panels of these various kinds are arranged to slide edgewise on the bottom of a channel, usually forming part of a surrounding frame for the panel (and for instance in an article of furniture), and a considerable amount of friction is thereby developed. In the case of some materials, such as wood, the channel is also liable to wear.

One object of the present invention is to provide inexpensive units which can be

normally and usually installed at appropriate intervals along the intended trackway of a panel edge, so as to serve as firm, non-wearing bearings for this edge, which set up negligible friction when the panel is moved therealong.

The unit provided for this purpose by the present invention comprises a mounting block of a resilient mouldable material, e.g. a thermoplastic such as polyethylene or rubber, with a ball bearing of steel or other hard material trapped in a cavity in this block, so that less than half the surface of the ball stands proud of the upper surface of the block and forms what is substantially a point bearing for the panel edge.

In practice, these units are arranged at intervals along the panel trackway, for example in a channel, with the tops of the balls in alignment, and the panel, which may for example be a glass plate, simply runs

over the tops of the and is in contact with these over a negligible area. Thus the units afford a wear resisting support, with a minimum of friction, and the smooth, frictionless sliding effect will be further promoted if the balls have a smooth polished finish. In addition, the blocks of resilient material have a cushioning effect.

The units described can be very quickly and inexpensively fabricated. Thus, in a simple form, the blocks may be rectangular and moulded with spaced holes for receiving fastening screws, a central ball-receiving cavity with a mouth of reduced area being provided between these holes. With the material of the block suitably chosen, the ball can be simply pressed in to its cavity and will be retained therein against detachment by the rim or lip around the mouth of the cavity.

In a development of the invention, the unit is of multiple form so that it can be used to mount the panels of a multiple-panel structure, e.g. the overlapping glass doors of a cabinet.

In such instances the unit may, in effect, comprise side by side spaced bearing-equipped blocks of the smooth form referred to above, these blocks being joined by a web which thereby forms the bottom of a groove between them. Conveniently the two blocks

and the connecting web be moulded as a unit.

These multiple units again are, in use, arranged at intervals along the trackway of the panel, with one ball of each pair dedicated to the support of one of the two panels to be supported. In this instance, the units may very conveniently be held down in a position by a parting bead passing through the gap between the component blocks of the unit and applied over the web joining them.

Lengths of beading may also be arranged at the two outer sides of the combined unit, so as to complete, in effect, a channel for each of the panels.

In such an arrangement the screw holes could be omitted from the unit, but these may nevertheless conveniently be included and used when the unit is fastened down otherwise than by a central bead or other means. Additionally, this arrangement has the advantage that the multiple units can be cut up into simple single units if required.

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Fig. 2.



Fig. 1.

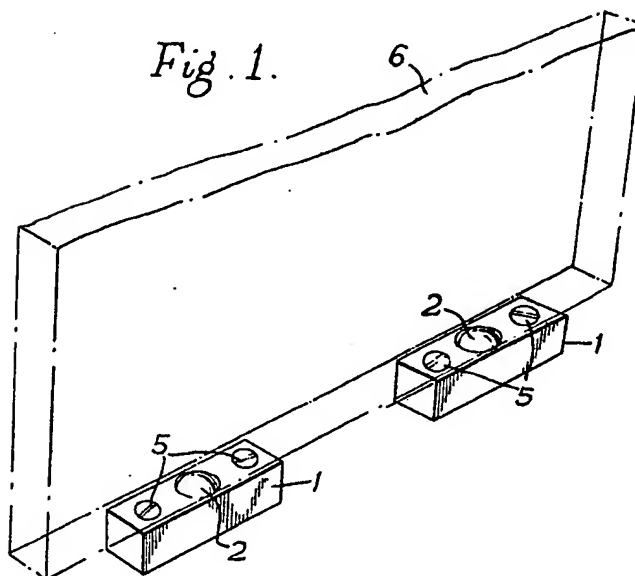


Fig. 3.

